Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT:

26a Elsworthy Road

London

NW3 3DL

REPORT PREPARED FOR:

Wendy Huck

26a Elsworthy Road

London

NW3 3DL

REPORT PREPARED BY

Adam Hollis

MSc ARB MICFor FArbor A MRICS C Env

Ref: ECS/ELS/AIA/01

Date: 12th February 2013

Caveats

This report is primarily an arboricultural report. Whilst comments relating to matters involving built structures or soil data may appear, any opinion thus expressed should be viewed as qualified, and confirmation from an appropriately qualified professional sought. Such points are usually clearly identified within the body of the report. It is not a full safety survey or subsidence risk assessment survey. These services can be provided but a further fee would be payable. Where matters of tree condition with a safety implication are noted during a survey they will of course appear in the report.

Tree works recommendations are found in the Appendices to this report. It is assumed, unless otherwise stated ("ASAP" or "Option to") that all husbandry recommendations will be carried out within 6 months of the report's first issue. Clearly, works required to facilitate development will not be required if the application is shelved or refused. However, necessary husbandry work should not be shelved with the application and should be brought to the attention of the person responsible, by the applicant, if different. Under the **Occupiers Liability Act** of 1957, the owner (or his agent) of a tree is charged with the due care of protecting persons and property from foreseeable damage and injury.' He is responsible for damage and/or nuisance arising from all parts of the tree, including roots and branches, regardless of the property on which they occur. He also has a duty under The **Health** and **Safety** at **Work Act** 1974 to provide a safe place of work, during construction. Tree works should only be carried out with local authority consent, where applicable.

Inherent in a tree survey is assessment of the risk associated with trees close to people and their property. Most human activities involve a degree of risk, such risks being commonly accepted if the associated benefits are perceived to be commensurate.

Risks associated with trees tend to increase with the age of the trees concerned, but so do many of the benefits. It will be appreciated, and deemed to be accepted by the client, that the formulation of recommendations for all management of trees will be guided by the cost-benefit analysis (in terms of amenity), of tree work that would remove all risk of tree related damage.

Prior to the commencement of any tree works, an ecological assessment of specific trees may be required to ascertain whether protected species (e.g. bats, badgers and invertebrates etc.) may be affected.

Tree Constraints & Protection Overview

Client:	Wendy Huck	**Case Ref:**	ECS/26ELS/AIA/01
Local Authority:	LB Camden	**Date:**	12th February 2013
Site Address: 26a Elsworthy Road, London NW3 3DL			
Proposal: Replacement of existing outbuilding and children's play area within the rear garden with a timber framed single storey eco-outbuilding for ancillary residential purposes.			

Report Checklist	**Y/N**		**Y/N**
Arboricultural constraints on site	Y	Trees removal proposed	N
Tree Survey	Y	Topographical Survey	Y
BS5837 Report	Y	Conservation Area	Y
Tree Preservation Orders	N/k		
Tree Protection Plan:	N/a		
Tree Constraints Plan:	Y		
Arboricultural Impact Assessment:	Y		

Site Layout				
Site Visit	Y	Date: 07/02/12	Access Full/Partial/None	F/P
Trees on Site	Y		Off-site Trees	Y
Trees affected by development	Y		O/s trees affected by development	
Tree replacement proposed:	N		On or off-site trees indirectly affected by development	

Trees with the potential to be affected

On-site T1: eco-outbuilding affects 8% of the theoretical RPA; mitigation through foundation design and construction reduces impact to low/very low.

Off-site T2: eco-outbuilding affects 7% of the theoretical RPA; mitigation as per T1

Comments

Further investigation into the decay on T1 recommended.

Recommendations

1	Proposal will mean the loss of important trees (TPO/CA)	N
2	Proposal has sufficient amelioration for tree loss	N/a
3	Proposals provide adequate tree protection measures	Y
4	Proposal will mean retained trees are too close to buildings	N/a
5	Specialist demolition / construction techniques required	Y
6	The Proposal will result in significant root damage to retained trees	N
7	Further investigation of tree condition recommended	Y

RPA= Root Protection Area
TPP= Tree Protection Plan
AMS= Arboricultural Method Statement
AIA = Arboricultural Implication Assessment
BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'

1. SUMMARY

1.1 This report comprises an arboricultural impact assessment of the proposals for 26a Elsworthy Road, London NW3 3DL, reviewing any conflicts between the proposals and material tree constraints identified in our survey.

1.2 There are 2 trees surveyed on or around the site, of which the off-site T2 is 'B/a' category *(Moderate Quality) and the on-site T1 is 'B/c' category *(Moderate Quality). In theory, only moderate quality trees and above are significant material constraints on development. However, the low quality trees will comprise a constraint in aggregate, in terms of at least, replacement planting.

1.3 The principal primary impact in the current proposal is the 7 - 8% theoretical RPA encroachments of T1 London plane and T2 common lime from the eco-building. The impacts occur within an existing excavated area supporting the woodchip surface (100mm deep) and structures for the existing playground, in addition to the hard standing for the existing shed. One could argue that a greater overall segment of RPA beyond the footprint would be disrupted by the footprint, but that should not be the case with shallow excavation and where significant roots are avoided. Thus, the primary impacts are likely to be low, if not very low, given sufficient site investigations and mitigation: the foundations will be manually excavated and comprise shallow discontinuous footings which can be repositioned to avoid significant roots.

1.4 Secondary impacts comprise minor shading and organic deposition, which can be mitigated by design. Furthermore, T1 is already under routine management, therefore no further pruning is required to reduce potential nuisance to the proposals.

1.5 The site has potential for development without impacting significantly on the wider tree population or local landscape. Thus, with suitable mitigation and supervision the scheme is viable.

* British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

2. INTRODUCTION

2.1 Terms of reference

2.1.1 LANDMARK TREES were asked by Wendy Huck to provide a survey and an arboricultural impact assessment of proposals for the site: 26a Elsworthy Road, London NW3 3DL. The report is to accompany a planning application.

2.1.2 The proposals are for the replacement of existing outbuilding and children's play area within the rear garden, with a timber framed single storey eco-outbuilding for ancillary residential purposes. This report will assess the impact on the trees and their constraints, identified in our survey. Although the proposals were known at the time of the survey, Landmark Trees endeavour to survey each site blind, working from a topographical survey, wherever possible, with the constraints plan informing their evolution.

2.1.3 I am a Registered Consultant and Fellow of the Arboricultural Association and a Chartered Forester, with a Masters Degree in Arboriculture and 25 years experience of the landscape industry - including the Forestry Commission and Agricultural Development and Advisory Service. I am a UK Registered Expert Witness, trained in single joint expert witness duties. I am also Chairman of the UK & I Regional Plant Appraisal Committee, inaugurated to promote international standards of valuation in arboriculture.

2.2 Drawings supplied

2.2.1 The drawings supplied by the client and relied upon by Landmark Trees in the formulation of our survey plans are:

Existing site survey: 26a-ER-C-110

Proposals: 342.PL.03 - PROPOSED SETTING OUT, FOUNDATION & TREE PROTECTION DETAILS

2.3 Scope of survey

2.3.1	As Landmark Trees' (LT) arboricultural consultant, I surveyed the trees on site on 7th February 2013, recording relevant qualitative data in order to assess both their suitability for retention and their constraints upon the site, in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837:2012].
2.3.2	Our survey of the trees, the soils and any other factors, is of a preliminary nature. The trees were SURVEYED on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). LT have not taken any samples for analysis and the trees were not climbed, but inspected from ground level.
2.3.3	The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

2.4 Survey data & report layout

2.4.1	Detailed records of individual trees are given in the survey schedule in Appendix 1 to this report.
2.4.2	A Tree Protection Plan (TPP) has been created using the above survey data and the details on the proposals. This plan identifies the surveyed trees, the theoretical Recommended Protection Areas (RPA's), the tree canopies and shade constraints, (from BS5837: 2012). The tree protection requirements have been evolved from this data and are also identified on the TPP in Appendix 3. General observations and discussion follow, below.

3.0 OBSERVATIONS

3.1 Site description

Photograph 1: Existing rear garden of 26a Elsworthy Road

3.1.1	The site is located within the rear garden of the residential property at 26a Elsworthy Road. The area proposed for re-development lies at the northern end of the rear garden; the land is currently used as a play area with a woodchip surface, in addition to accommodating an existing shed and water feature.
3.1.2	The site is level, with various landscaped features including raised flowerbeds. The grass has been replaced with astroturf.
3.1.3	In terms of the British Geological Survey, the site overlies the London Clay Formation (see indicated location on Fig.1 plan extract below). The associated soils are generally, highly shrinkable clay; e.g. slowly permeable seasonally waterlogged fine loam over clay. Such highly plastic soils are prone to movement: subsidence and heave. The actual distribution of the soil series are not as clearly defined on the ground as on plan and there may be anomalies in the actual composition of clay, silt and sand content.
3.1.4	Clay soils are prone to compaction during development with damage to soil structure potentially having a serious impact on tree health. The design of foundations near problematic tree species will also need to take into consideration subsidence risk. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

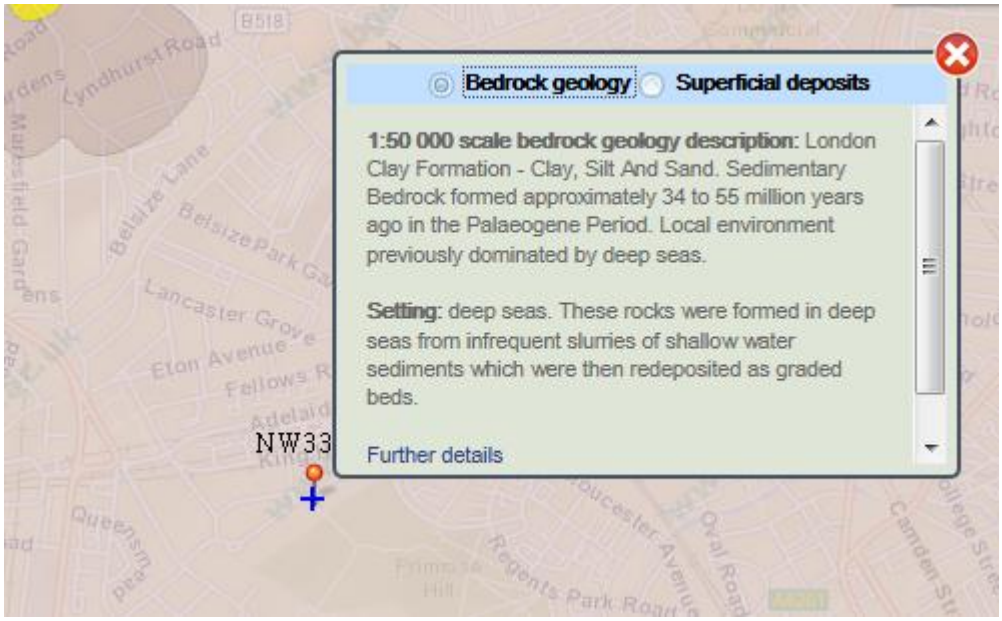

Figure 1: Extract from the BGS Geology of Britain Viewer

3.2 Subject trees

3.2.1	Of the 2 surveyed trees, the off-site lime tree T2 is a 'B/a' category (Moderate/High Quality), with the on-site London plane T1 a 'B/c' category (Moderate/Low Quality) tree.
3.2.2	T1 is located within the rear garden of 26a; it has been routinely pollarded to 12m, although shows signs of historic pollarding at 5m. The pollarded heads are decayed with cavities, which require further investigation (see 3.2.5 below). T2 is an off-site lime tree that was remotely surveyed, situated in the neighbouring garden to the north west; it is 19m high with a ground clearance of 4m and appears to be in good condition.
3.2.3	In terms of age demographics, both trees are mature.

3.2.4	Full details of the surveyed trees can be found in Appendix 1 of this report.
3.2.5	There are some arboricultural works required within the existing tree population. These are listed in Appendix 2. It is important to note that further investigation is recommended to determine the extent of the decay in T1.

3.3 Planning Status

3.3.1	We are not aware of the existence of any Tree Preservation Orders, but understand the site stands within the Elsworthy Conservation Area, which will affect the subject trees: it is a criminal offence to prune, damage or fell such trees without permission from the local authority.

4.0 DEVELOPMENT CONSTRAINTS

4.1 Primary constraints

4.1.1 BS5837: 2012 gives Recommended Protection Areas (RPA's) for any given tree size. The individual RPA's are calculated in the Tree Schedule in Appendix 1 to this report, or rather the notional radius of that RPA, based on a circular protection zone. The prescribed radius is 12-x stem diameter at 1.5m above ground level, except where composite formulae are used in the case of multi-stemmed trees.

4.1.2 Circular RPA's are appropriate for individual specimen trees grown freely, but where there is ground disturbance, the morphology of the RPA can be modified to an alternative polygon, as shown in the diagram below (Figure 2). Alternatively, one need principally remember that RPA's are area-based and not linear – notional rather than fixed entities. **No modifications have been made in this instance (please see overleaf).**

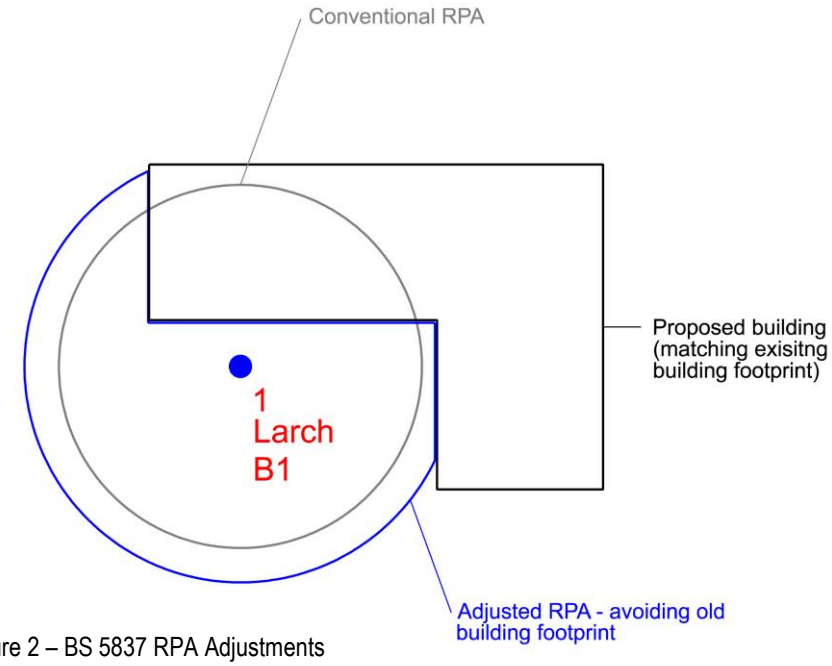

Figure 2 – BS 5837 RPA Adjustments

4.1.3 In BS5837, paragraph 4.6.2 states that RPA's should reflect the morphology and disposition of the roots; where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution. Not infrequently, LT are requested by LPA Tree Officers to modify the RPA's to reflect their assumptions that e.g. a road will have drastically limited root growth.

4.1.4 Such assumptions cannot be proved without prior site investigations / trial pits. Where it is not always possible to conduct site investigations (e.g. below busy roads), we can always look to the published science. There seems little support for the popular myth that roads and services will curb root growth: research for the International Society of Arboriculture by Kopinga J (ISA 1994), found that "a constant high moisture content of the soil directly underneath the pavement surface can be considered as a major soil factor in attracting the trees' roots to develop there." By contrast, grass in lawns may actively antagonise tree roots with natural pathogens. Similarly, Professor F Miller (ISA 1994) found that service trenches at > 3m distances from trees had minimal impact on growth or crown shape.

4.1.5 A key misunderstanding, even among professionals, is that we conflate the RPA with the actual root system: RPA's are *prima facie* a notion / convention / treaty and almost entirely theoretical, but readily calculable. Conversely roots are a "known unknown," spatial entity that we predict at our folly. Yet, many are quick to do so.

4.1.6 LT favour the neutrality of a circular RPA, because in a difference of opinion, the tree officer will always have the prerogative to dictate the final modification of shape. With the best will in the world, the free allowance of modifications will tend to lead to inequitable outcomes, prejudicing the applicant and the practice is in our view, best avoided. The neutral circle dispenses with this inequity.

4.1.7 Ultimately, the point of the circular RPA is to illustrate areas of concern. The purpose of this report is to consider areas of concern (not to modify them to suit our argument or findings). Therefore, no modifications are made here to the RPA's, regardless of roads etc.

4.1.8 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited service life. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function. As discrete, internal trees, their removal will not affect the wooded envelope that encloses much of the site.

4.1.9 At paragraph 5.1.1. BS5837: 2012 notes that "Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal."

4.1.10 In theory, only moderate quality trees and above are significant material constraints on development. However, the low quality trees will comprise a constraint in aggregate, in terms of at least, replacement planting.

4.1.11 In this instance, the moderate quality trees T1 and T2 have the potential to constrain development. However, the existing excavated play surface, play structures and hard standings to support the shed and fountain will have affected the rooting mass of this tree.

4.2 Secondary Constraints

4.2.1 The second type of constraint produced by trees that are to be retained is that the proximity of the proposed development to the trees should not threaten their future with ever increasing demands for tree surgery or felling to remove nuisance shading (Figure 3), honeydew deposition or perceived risk of harm.

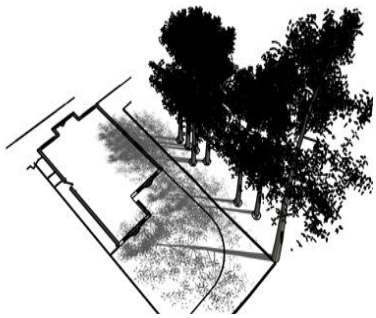

Figure 3 – Shading Constraints

4.2.2 The shading constraints are crudely determined from BS5837 by drawing an arc from northwest to east of the stem base at a distance equal to the height of the tree, as shown in the diagram opposite. Shade is less of a constraint on non-residential developments, particularly where rooms are only ever temporarily occupied.

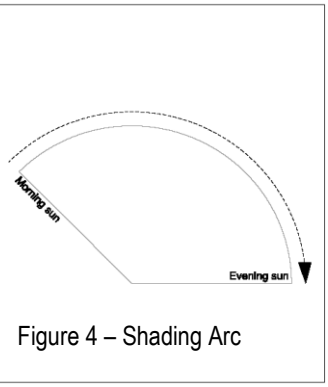

Figure 4 – Shading Arc

4.2.3 This arc (see Figure 4) represents the effects that a tree will have on layout through shade, based on shadow patterns of 1x tree height for a period May to Sept inclusive 10.00-18.00 hrs daily.

4.2.4	Assuming that they will be retained, the orientation of the on-site tree will have the potential to provide a variety of secondary constraints, including shading and organic deposition. The significance of these constraints will vary depending on the location and proximity to the proposed re-development. It is important to note that T1 is already under routine management, therefore no further pruning is required to reduce potential nuisance to future proposals.

Note: Sections 5 & 6 will now assess the impacts upon constraints identified in Section 4. Table 1 in Section 5 presents the impacts in tabular form (drawing upon survey data presented in Appendices 1 & 2). Impacts are presented in terms of whole tree removal and the effect on the landscape or partial encroachment (% of RPA) and its effect on individual tree health. Section 6 discusses the table data, elaborating upon the impacts' significance and mitigation.

5.0 Table 1: Arboricultural Impact Assessment

(Impacts assessed prior to mitigation and rated with reference to From Matheny & Cark (19

Hide irrelevant | Show All Trees

Ref: ECS/26ELS/AIA/01

B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
B/c	1	Plane, London	Building Construction within RPA	36 m^2 8.12 %	Mature	Normal	Good	Low	N/A	Low-invasive foundation design Ground protection for construction access
B/a	2	Lime, Common	Building Construction within RPA	12 m^2 7.37 %	Mature	Normal	Moderate	Low	N/A	Low-invasive foundation design Ground protection for construction access

6.0 DISCUSSION

6.1 Rating of Primary Impacts

6.1.1 The principal primary impact in the current proposal is the 7 - 8% theoretical RPA encroachments of T1 London plane and T2 common lime from the eco-building. The impacts occur within an existing excavated area supporting the woodchip surface (100mm deep) and structures for the existing playground, in addition to the hard standing for the existing shed. One could argue that a greater overall segment of RPA beyond the footprint would be disrupted by the footprint, but that should not be the case with shallow excavation and where significant roots are avoided. Thus, the primary impacts are likely to be low, if not very low, given sufficient site investigations and mitigation: the foundations will be manually excavated and comprise shallow discontinuous footings which can be repositioned to avoid significant roots.

6.1.2 The principal of RPA encroachment is established within BS5837:2012 and supported by the source document, National Joint Utilities Guidelines 10 / Vol. 4 1995 / 2010. NJUG introduced the x12 diameter *Precautionary Zone* for supervised working and *Prohibited Zone* at a universal 1m from the base of the tree. RPA's are frequently confused with the NJUG Prohibited Zone, when they clearly correlate with the NJUG Precautionary Zone.

6.1.3 An RPA encroachment of <20% of RPA may be considered as low impact, given the permissive references to 20% RPA relocation and impermeable paving within BS5837:2012 and other published references to healthy trees tolerating up to 30-50% root severance (Coder, Helliwell and Watson in CEH 2006). The trees in question are healthy specimens of species with a good resistance to development impacts, and quite capable of tolerating these low impacts.

6.1.4 "**In practice 50% of roots can sometimes be removed with little problem**, provided there are vigorous roots elsewhere. Inevitably, this degree of root loss will temporarily slow canopy growth and even lead to some dieback" (Thomas 2000). LT do not recommend annexing such high proportions of the root system; rather that within the context of the published science, planning should not be unduly concerned by impacts that are well below the subcritical threshold – *tree health is not at stake.*

6.2 Rating of Secondary impacts

6.2.1 The principal, secondary impact would be minor shading and organic deposition. Furthermore, T1 is already under routine management, therefore no further pruning is required to reduce potential nuisance to the proposals.

6.3 Mitigation of Impacts

6.3.1	All equipment (wheelbarrows etc.) engaged in the removal of the play equipment, shed and water feature should run on a temporary surface designed to protect the underlying soil structure. The existing astroturf and woodchip can serve as generic ground protection, but with access routes and working stations supplemented with boarded walkways. The wood chip and hard surfacing can be lifted with caution by a skilled machine operator or by hand, again working away from the tree.

6.3.2	The building encroachments will require the use of specialised foundation techniques, with shallow discontinuous footings hand-dug down to a depth of 250mm (see figure 5 below). This will require a further 150mm excavation below the existing level of the wood chip playground surface, with each foundation pit within the RPA pre-emptively excavated by hand under arboricultural supervision. Roots smaller then 25mm diameter may be cut cleanly with a sharp pruning saw or secateurs back to a junction. Roots larger then 25mm diameter may only be cut in consultation with an arboriculturalist.
6.3.3	The pad created will be filled with a granular sub-base, with a pre-cast concrete paving slab used to support the 'shoes' on the proposed building. In this way, the proposal will identify and protect the significant roots that may lie within the additional 150mm excavation proposed for each footing. Where significant roots are identified, the footing should be repositioned.

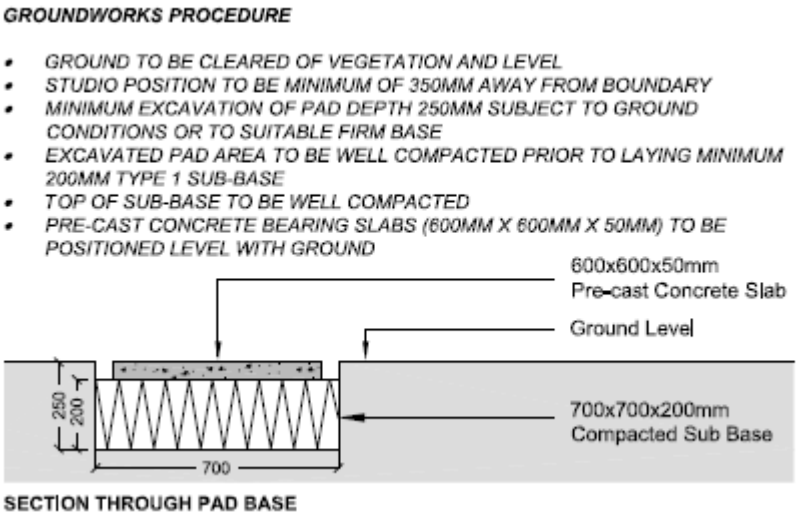

Figure 5: Proposed foundations for the Eco-building

6.3.4	Nuisance deposition can be mitigated with the maintenance of the existing pruning cycle and filtration traps on the guttering (see Figure 6 below). Alternatively, a green roof construction might be considered.
6.3.5	The shading impacts can be further mitigated by building design, with the provision of dual aspect windows and choice of room layout.
6.3.6	Any substantial new paths to the building will require a no-dig construction technique, using a cellular confinement system with no fines aggregate for the sub-base.

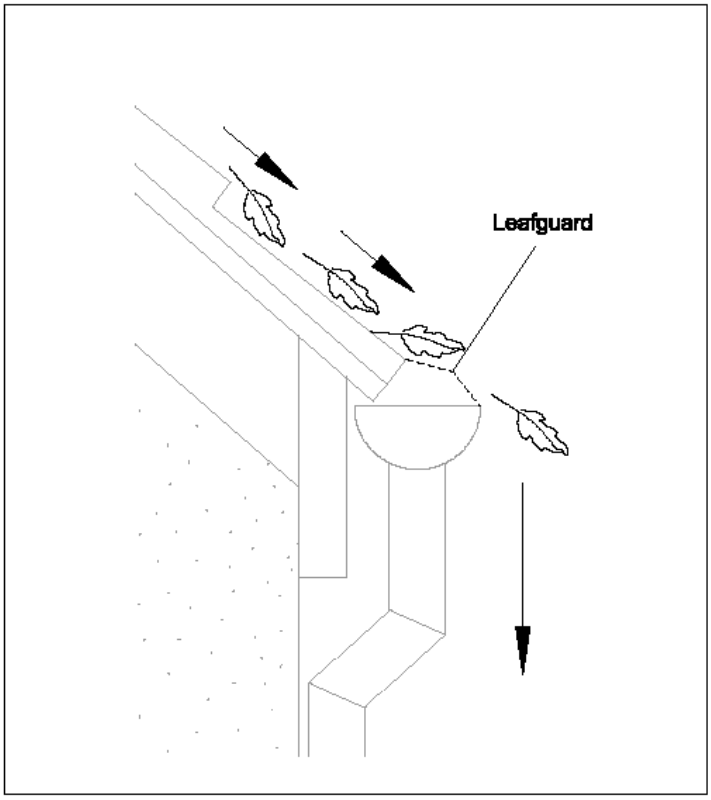

Figure 6: Filtration traps, as shown above, could be fitted on the gutters which can easily be maintained at 2-3m above ground.

7.0 CONCLUSION

7.1	The potential impacts of development are all relatively low in terms of the encroachment of the theoretical RPA's of both T1 and the off-site T2.
7.2	The full potential of the impacts can be largely mitigated through design and precautionary measures. These measures are elaborated in the Outline Method Statement in Section 8.2 of this report.
7.3	The species affected are generally tolerant of root disturbance / crown reduction and the retained trees are generally in good health and capable of sustaining these reduced impacts.
7.4	Therefore, the proposals will not have any significant impact on either the retained trees or wider landscape.

8.0 RECOMMENDATIONS

8.1 Specific Recommendations

8.1.1	Current tree works recommendations are found in Appendix 2 to this report.
8.1.2	Excavation and construction impacts within the RPA's of trees identified in Table 1 above, will need to be controlled by the mitigation methods suggested in Section 6.3, the Outline Method Statement below at Section 8.2 and by consultant supervision as necessary.

8.2 Outline Method Statement

8.2.1	T1's immediate stem will be protected with a Tree Protection Barrier (TPB). This TPB should comprise 2m tall welded mesh panels on rubber concrete feet (see figure 6 below). Panels can be joined together using a minimum of two anti-tamper couplers, installed so that they can be removed from inside the fence. The panels should be supported on the inner side by stabiliser struts, which should be attached to a base plate and secured with pins away from major roots. The fencing will be positioned around the immediate stem and buttress roots, to allow access to the footprint of the building.
8.2.2	A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA.

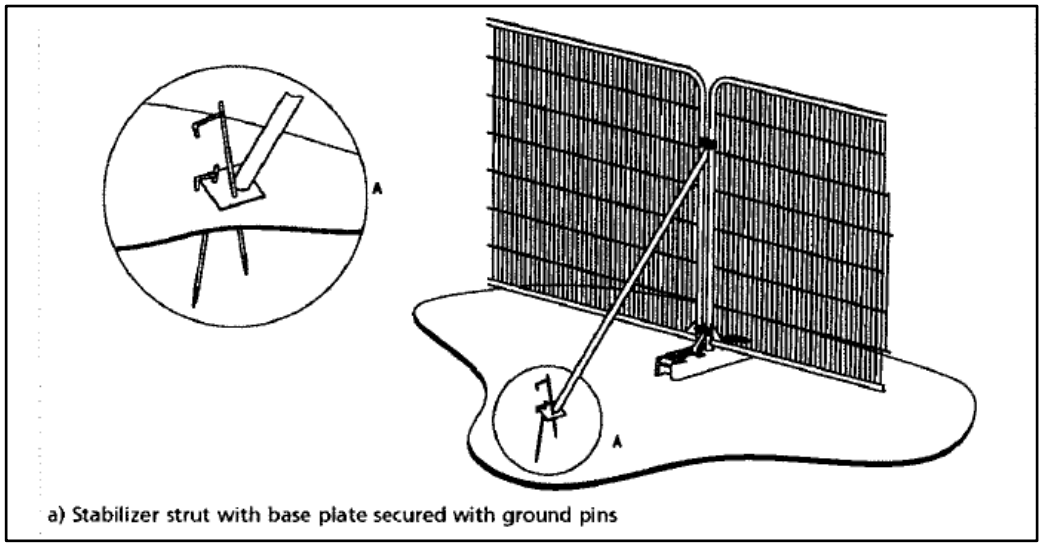

Figure 6: Proposed tree protection barrier

8.2.3 Where T1's RPA lies outside the above fencing, the existing astroturf and wood chip play surface will provide generic ground protection, supplemented with boarded walkways. The new temporary ground protection should be capable of supporting any traffic entering the site without being distorted or causing compaction of the underlying soil. The ground protection might comprise proprietary inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of the woodchip), laid on a geotextile membrane.

8.2.4 Where sections of hard surfacing are proposed in close proximity to trees, it is recommended that "No-Dig" surfacing be employed in accordance with BS5837:2012 and 'The Principles of Arboricultural Practice: Note 1, Driveways Close to Trees, AAIS 1996 [APN1]'.

8.2.5 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.

8.2.6 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.

8.2.7 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:

1) Schedule of tree protection measures, including the management of harmful substances.
2) Site logistics plan to include storage, plant parking/stationing and materials handling.
3) Tree works: All works must be carried out by a competent arborist in accordance with BS3998.
4) Site supervision: the Site Agent must be nominated to be responsible for all arboricultural matters on site. This person must:
   - be present on site for the majority of the time;
   - be aware of the arboricultural responsibilities;
   - have the authority to stop work that is causing, or may cause harm to any tree;
   - ensure all site operatives are aware of their responsibilities to the trees on site and the consequences of a failure to observe these responsibilities;
   - make immediate contact with the local authority and/or a retained arboriculturalist in the event of any tree related problems occurring.

8.2.9	These points can be resolved and approved through consultation with the planning authority via their Arboricultural Officer.
8.2.10	The sequence of works should be as follows:
	i) initial tree works: further investigation of decay in T1;
	ii) installation of TPB for demolition & construction;
	iii) installation of underground services;
	iv) installation of ground protection;
	v) main demolition/construction;
	vi) removal of TPB;
	vii) soft landscaping.

9.0 REFERENCES

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APPENDIX 1

TREE SCHEDULE - Notes for Guidance

Dm -	is the diameter of the trunk in millimetres at 1.5m above ground level.
Spread -	is in metres at the points of the compass relevant to the woodland boundary
Class/Colour -	refers to the retention classifications in Section 4.5 BS5837: 2012 and colouring on the site map: ● High Quality (A) (Green), ● Moderate Quality (B) (Blue), ● Low Quality (C) (Grey), ● Unsuitable for Retention (U) (Red)

Landmark Trees

Site: 26A Elsworthy Road, London NW3 3DL

Date: 7th February 2013

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
Tel: 020 7851 4544

Surveyor(s): Adam Hollis

Ref: ECS/ELS/AIA/01

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
1	Plane, London	16	5	7	Mature	990.0	12	11.9	Normal	Fair	B/c	2	>40	Pollarded (recently & routinely) @ 12m Decay (including cavities) in pollard heads Historically pollarded @5m Garden around tree recently landscaped to Astroturf and wood chip play area.
2	Lime, Common	19	5454	4	Mature	600.0	12	7.2	Normal	Good?	B/a	2	>40	Remote survey only (off-site tree)

APPENDIX 2

RECOMMENDED TREE WORKS

Landmark Trees

Site: 26A Elsworthy Road, London NW3 3DL

Date: 7th February 2013

Hide irrelevant | Show All Trees

Surveyor(s): Adam Hollis

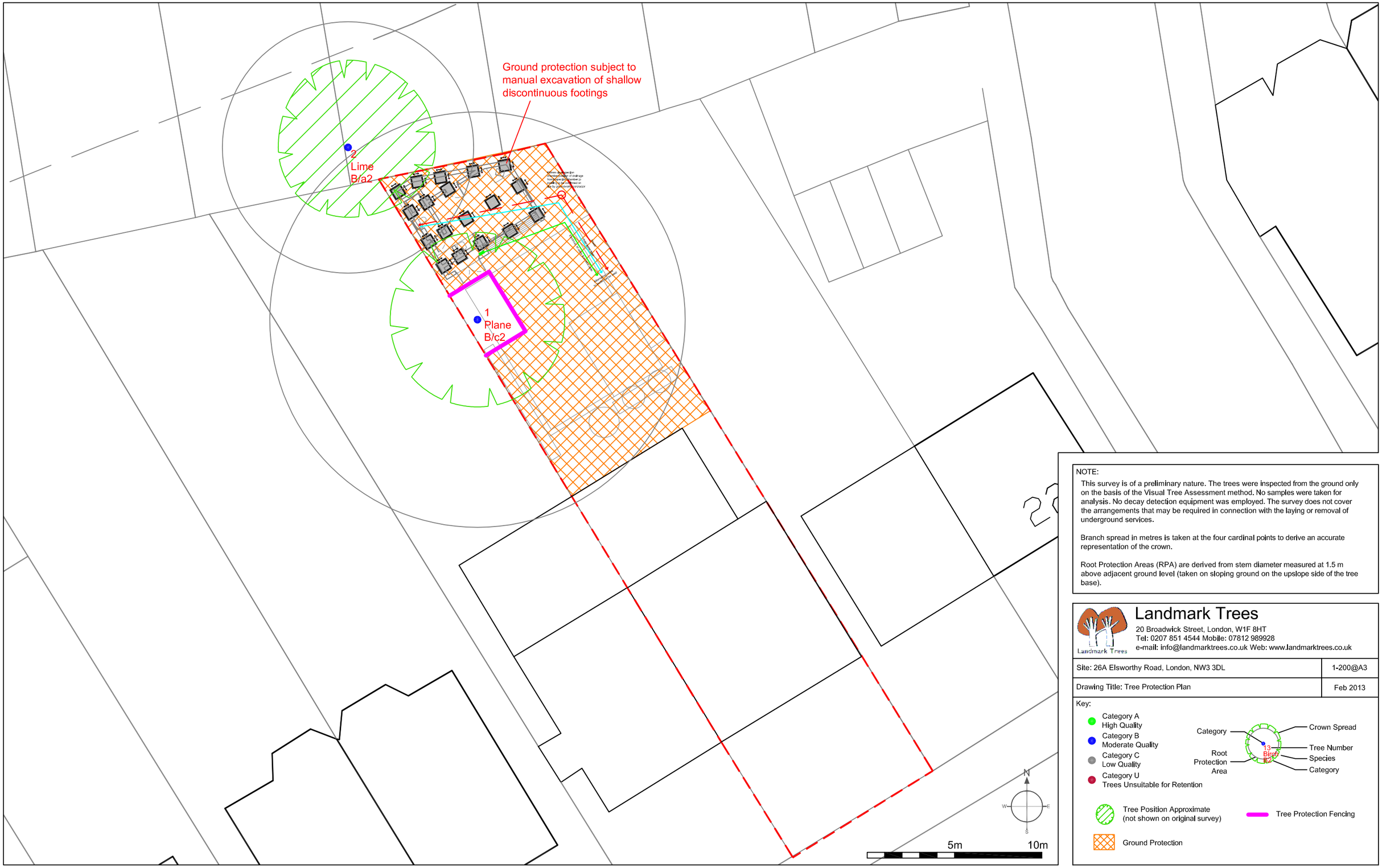
Ref: ECS/ELS/AIA/01

Recommended Tree Works

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works	Comments/ Reasons
1	Plane, London	16	990.0	5	FInv 2 Climbing inspection to determine extent of cavities	Pollarded (recently & routinely) @ 12m Decay (including cavities) in pollard heads Historically pollarded @5m Garden around tree recently landscaped to Advisable for good arboricultural practice

APPENDIX 3

TREE PROTECTION PLAN



NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

Landmark Trees

20 Broadwick Street, London, W1F 8HT
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 26A Elsworthy Road, London, NW3 3DL	1-200@A3
Drawing Title: Tree Protection Plan	Feb 2013

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Category — Crown Spread
Root Protection Area — Tree Number
13
Birch
A2
Species
Category

Tree Position Approximate (not shown on original survey)

Tree Protection Fencing

Ground Protection